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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/050,968	01/22/2002	Yaniv Avital	12410.0016	7889

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EXAMINER	
JOSEPH, JAISON	

ART UNIT	PAPER NUMBER
2634	

DATE MAILED: 08/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/050,968	AVITAL ET AL.	
	Examiner	Art Unit	
	Jaison Joseph	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6,7,10-13,16,17,19,26-31,33 and 34* is/are rejected.

7)☒ Claim(s) *5,8-9,14-15,18,20 - 25, and 32* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claims 1 – 34 are pending in the instant application.

Response to Arguments

Applicant's arguments with respect to claims 1 - 34 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1 – 4 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (US Patent 6,813,262) in view of Oishi et al. (US Patent 6,950,689) and further in view of Lee (US patent 6,173,008).

Regarding claim 1, Lee et al teach a correlator for correlating an input signal with code having a sample register adapted to store and output E input samples every chip period of an input sample stream clocked at an over sampling ratio R times nominal sampling clock rate, a single code register (figure 2, component 300) adapted to store and output a code value at sail nominal sampling clock rate, multiplier coupled to said sample register and said code register, said multiplier adapted to multiply the output of

said sample register with the output of said code register, an adder adapted to add the output of said multiplier (see figure 3). Lee et al failed to teach the multiplier is a single multiplier and the single adder adapted to add the output of multiplier with correlation sum output of the integration result shift register and to produce an adapted correlation sum therefrom. However, Oishi et al teach a correlator with single multiplier and a single adder adapted to add the output of the multiplier with correlation sum output (see figure 1, components 23a, 23b). Therefore, it would be obvious to an ordinary skilled in the art at the time the invention was made to use the teachings of Oishi et a. in Lee et al.'s correlator to provide a correlator having circuitry of a smaller scale (see column 5, line 26 – 29). The combination of Lee et al and Oishi et al failed to teach the integrator is M-stage integrator. However Lee teaches a M-stage integrator in a correlator wherein said integration shift register adapted to store M correlation sums wherein updated correlation sums output of said adder are shifted into said integration results shift register such that the over-sampling phase of the correlation sum at the output of said integration results shift register corresponds to the correlation sum currently at the input to said adder (see abstract). Therefore it would be obvious to an ordinary skilled in the art at the time the invention was made to provide a rake receiver for reducing the amount of needed of hardware without deteriorating the processor performance (see column 2, line 28 – 32).

Regarding claim 2, which inherits the limitations of claim 1, Lee et al teach said code register is adapted to be loaded with a new code value once every R over-sampling cycles (see column 5, lines 5 – 18).

Regarding claim 3, which inherits the limitations of claim 1, Lee et al teach said code register id loaded with values output by a code generator (see figure 2, component 400).

Regarding claim 4, which inherits the limitations of claim 1, the reference teach that the sample register, code register, multiplier, adder, and the integration results shift register are adapted to process and output complex values.

Claims 6, 7,10 – 13, 16, 17, 19, 28 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (US Patent 6,813,262) in view of Oishi et al. (US Patent 6,950,689) and Lee (US patent 6,173,008) and further in view of Hakala (US Patent 6,539,048).

Regarding claim 6, claimed apparatus including the features corresponding to subject matter mentioned above in rejection of claim 1 is applicable hereto. The combination of Lee et al, Oishi et al and Lee failed to teach the code register is circular code shift register. However Hakala teaches a circular code shift register in CDMA code generator (see column 4, lines 64 – 66). Therefor it would be obvious to an ordinary skilled in the art at the time the invention was made to use a circular shift register in Imaizumi et al.'s code generator to provide an improved matched filter that exhibits a reduced power consumption (see column 2, lines 35 – 37).

Regarding claim 7, which inherits the limitations of claim 6, Lee et al teach said second clock rate is equal to N tmes said first clock rate (see column 5, lines 5 – 8).

Regarding claim 10, which inherits the limitations of claim 6, claimed apparatus including the features corresponding to subject matter mentioned above in rejection of claim 4 is applicable hereto.

Regarding claim 11 and 12, which inherits the limitations of claim 6, Hakala teaches said code shift register is adapted to e parallel loaded with N code values once every input sample interval (see column 5, lines 27 – 28).

Regarding claim 13, which inherits the limitations of claim 11 or 12, claimed apparatus including the features corresponding to subject matter mentioned above rejection of claim 3 is applicable hereto.

Regarding claim 16, claimed apparatus including the features corresponding to subject matter mentioned above in rejection of claim 6 is applicable hereto. Further Oishi et al teach a receiver having a radio frequency front end for receiveing a spread spectrum RF signal having a plurality of multipath components, a searcher adapted to measure the multipath components of said RF signal and to generate one or more path selections and a collapse filter (see abstract) bank for generating a plurality of demodulated signals from said RF signal (see column 1, lines 40 – 60).

Regarding claim 17, which inherits the limitations of claim 16, Oishi et al further teach a channel decoder adapted to decode receive data input signal and generate a decoded output signal thereform (see figure 19).

Regarding claim 19, which inherits the limitations of claim 1 or 6 or16 Oishi et al teach timing means adapted to provide suitable timing, control, and clock signals to said correlator (see figure 3).

Regarding claim 28, claimed apparatus including the features corresponding to subject matter mentioned above in rejection of claim 6 is applicable hereto.

Regarding claim 31, claimed apparatus including the features corresponding to subject matter mentioned above in rejection of claim 6 is applicable hereto.

Claims 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (US Patent 6,813,262) in view of Oishi et al. (US Patent 6,950,689) and Lee (US patent 6,173,008) and further in view of Wang et al. (US Patent 6,501,788).

Regarding claim 26, which inherits the limitations of claim 1, the combination of claim 1 failed to teach the correlator is adapted to implemented in an Application Specific Integrated Circuit. However Wang et al. teaches the correlator can be in an Application Specific Integrated Circuit (see column 9, lines 27 – 38). Therefore, it would be obvious to an ordinary skilled in the art at the time the invention was made to implement the correlator in Application Specific Integrated Circuit to provide communications apparatus and methods that can reduce multi-user interference in spread-spectrum communications systems (see column 3, lines 36 – 39).

Regarding claim 27, which inherits the limitations of claim 1, the combination of claim 1 failed to teach the correlator is adapted to implement in a Field Programmable Gate Array. However Wang et al. teaches the correlator can be in a Field Programmable Gate Array (see column 9, lines 27 – 38). Therefore, it would be obvious to an ordinary skilled in the art at the time the invention was made to implement the correlator in a Field Programmable Gate Array to provide communications apparatus

and methods that can reduce multi-user interference in spread-spectrum communications systems (see column 3, lines 36 – 39).

Claims 26, 27, 29, 30, 33, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (US Patent 6,813,262) in view of Oishi et al. (US Patent 6,950,689), Lee (US patent 6,173,008) and Hakala (US Patent 6,539,048) and further in view of Wang et al. (US Patent 6,501,788).

Regarding claim 26, which inherits the limitations of claim 6, or 16, the combination of claim 6 or 16 failed to teach the correlator is adapted to implement in an Application Specific Integrated Circuit. However Wang et al. teaches the correlator can be in an Application Specific Integrated Circuit (see column 9, lines 27 – 38). Therefore, it would be obvious to an ordinary skilled in the art at the time the invention was made to implement the correlator in Application Specific Integrated Circuit to provide communications apparatus and methods that can reduce multi-user interference in spread-spectrum communications systems (see column 3, lines 36 – 39).

Regarding claim 27, which inherits the limitations of claim 6, or 16, the combination of claim 6 or 16 failed to teach the correlator is adapted to implement in a Field Programmable Gate Array. However Wang et al. teaches the correlator can be in a Field Programmable Gate Array (see column 9, lines 27 – 38). Therefore, it would be obvious to an ordinary skilled in the art at the time the invention was made to implement the correlator in a Field Programmable Gate Array to provide communications apparatus and methods that can reduce multi-user interference in spread-spectrum communications systems (see column 3, lines 36 – 39).

Regarding claim 29, which inherits the limitations of claim 28, claimed apparatus including the features corresponding to subject matter mentioned above rejection of claim 26 is applicable hereto.

Regarding claim 30, which inherits the limitations of claim 28, claimed apparatus including the features corresponding to subject matter mentioned above rejection of claim 27 is applicable hereto.

Regarding claim 33, which inherits the limitations of claim 31, claimed apparatus including the features corresponding to subject matter mentioned above rejection of claim 26 is applicable hereto.

Regarding claim 34, which inherits the limitations of claim 31, claimed apparatus including the features corresponding to subject matter mentioned above rejection of claim 27 is applicable hereto.

Allowable Subject Matter

Claims 5, 8 – 9, 14 – 15, 18, 20 – 25, and 32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jaison Joseph whose telephone number is (571) 272-6041. The examiner can normally be reached on M-F 8:30 - 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (571) 272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jaison Joseph
08/05/2005

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